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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,463	10/07/2005	Akihiro Ishii	038788.56805US	2235
23911 7590 05/17/2007 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			EXAMINER CRANE, LAWRENCE E	
			ART UNIT 1623	PAPER NUMBER
			MAIL DATE 05/17/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/552,463	<b>Applicant(s)</b> ISHII ET AL.	
	<b>Examiner</b> L. E. Crane	<b>Art Unit</b> 1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on October 7, 2005 (preliminary amendment).
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/7/05; 11/23/05; 1/18/06</u> . | 6) <input type="checkbox"/> Other: _____  |

The instant disclosure fails to include "Cross-References to Related Applications." See 37 C.F.R. §1.78 and MPEP at §201.11. Applicant is respectfully requested to include the requested information as the first paragraph of the disclosure.

The oath or declaration is defective. A new oath or declaration in compliance with 37 C.F.R. §1.67(a) identifying this application by its Serial Number and filing date is required. See MPEP 602.01 and 602.02. The oath or declaration is defective because:

It cites the same inventor twice and includes an amendment of citizenship for applicant Dellinger without the required initials.

No claims have been cancelled, claims 1-7 have been amended, the disclosure has not been amended, and new claims 8-11 have been added as per the preliminary amendments filed October 7, 2005. Three Information Disclosure Statements (3 IDS) filed October 7, 2005, November 23, 2005 and January 18, 2006 have been received with all cited references and made of record. See individual IDS's for references not made of record for lack of complete bibliographic information.

Claims 1-11 remain in the case.

Note to applicant: when a rejection refers to a claim X at line y, the line number "y" is determined from the claim as previously submitted by applicant in the most recent response including ~~lines deleted by line through~~.

The disclosure is objected to because of the following informalities:

The term "Trifluoromethanesulonation" at page 26, line 12, is a misspelling of -- Trifluoromethanesulfonation -- (emphasis added). Applicant is respectfully requested to carefully edit the remainder of the disclosure for other errors in spelling and for errors in grammar and usage.

Appropriate correction is required.

Claims 1-11 are objected to because of the following informalities:

Examiner surmises that the instant disclosure and claims were drafted by a technically educated person or persons who are not entirely familiar with English grammar and usage, or the conventions of patent claim drafting. Applicant is respectfully requested to amend the claims as appropriate in order to insure that the claims are free from grammatical and usage errors and reasonably conform to standard patent claim conventions.

For example, in claim 1 at lines 4, 8 and 15, the term "a protecting group of hydroxyl group" should be amended to read -- a hydroxyl protecting group --. In addition, the variable "R" should only be defined a single time. In claim 1 see also lines 6 and 9 wherein the term "the formula" should be amended to eliminate the term "the" as superfluous, and line 17 wherein the term "comprising" need not be repeated to insure proper claim coverage. Similar problems reoccur in the remaining claims.

Appropriate correction is required.

Claims 4-11 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4, 8, 10 and 11 appear to be directed to substantially equivalent subject matter. Applicant is respectfully requested to amend the noted claims to distinguish the subject matter or take other appropriate action. See also claims 5, 6 and 9 wherein a similar problem reoccurs.

In claim 7 at line 1, the term "form" is technically incorrect. Did applicant intend the term to read -- compound --?

The following is a quotation of 35 U.S.C. §103(a) which forms the basis for all obviousness rejections set forth in this Office action:

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made."

Claims 1-6 and 8-11 are rejected under 35 U.S.C. §103(a) as being unpatentable over **Ikehara et al.** (PTO-1449 ref. AC2) in view of **Hayakawa et al.** (PTO-892 ref. R).

The instant claims are directed to a three step process of making 2'-fluoro-2'-deoxyuridine:

- i) reaction of a 3', 5'-diprotected ara-Uridine with a trifluoromethanesulfonyl halide or similar reagent to produce the 2'-trifyl analogue of 3', 5'-diprotected ara-Uridine,
- ii) displacement of the trifyl group by contacting the intermediate compound with the hydrofluoride salt of an amine to produce 2'-fluoro-2'-deoxy-3', 5'-diprotected ara-Uridine, and
- iii) deprotection of the second intermediate by contacting same with aqueous acetic acid wherein the 3'- and 5'-protecting groups are tetrahydropyranyl.

**Ikehara et al.** discloses at page 133 the conversion of ara-adenosine to 2'-fluoro-2'-deoxyadenosine by the identical series of reaction steps delineated above.

**Ikehara et al.** does not expressly disclose the conversion of ara-uridine to 2'-fluoro-2'-deoxyuridine.

**Hayakawa et al.** (PTO-892 ref. R) discloses at page 1137, column 2, Charts 3 and 4, that uridine nucleosides can be fluorinated at the 2'-position by a different mechanism in the presence of the DAST reagent.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to expect that the substitution of the **Ikehara et al.** process conditions for the **Hayakawa et al.** process conditions would generate a similar synthetic result when applied to a suitably protected ara-uridine compound.

One having ordinary skill in the art would have been motivated to combine these references because both references are directed to the modification of ribonucleoside wherein a 2'-hydroxyl is replaced by a fluoro substituent.

Therefore, the instant claimed process for making 2'-fluoro-2'-deoxyuridine would have been obvious to one of ordinary skill in the art having the above cited reference before him at the time the invention was made.

Claim 7 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. §112 set forth in this Office action.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. §103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. §1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. §103(c) and potential 35 U.S.C. §§102(f) or (g) prior art under 35 U.S.C. §103(a).

Papers related to this application may be submitted to Group 1600 via facsimile transmission (FAX). The transmission of such papers must conform with the notice published in the Official Gazette (1096 OG 30, November 15, 1989). The telephone number to FAX (unofficially) directly to Examiner's computer is 571-273-0651. The telephone number for sending an Official FAX to the PTO is 571-273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner L. E. Crane whose telephone number is **571-272-0651**. The examiner can normally be reached between 9:30 AM and 5:00 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. S. Anna Jiang, can be reached at **571-272-0627**.

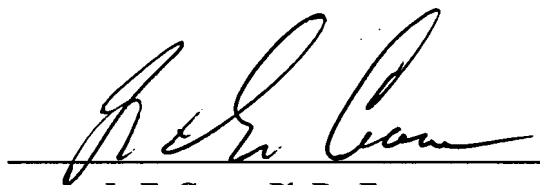
Any inquiry of a general nature or relating to the status of this application should be directed to the Group 1600 receptionist whose telephone number is **571-272-1600**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status Information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see < <http://pair-direct.uspto.gov> >. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

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LECrane:lec  
05/14/2007

A handwritten signature in black ink, appearing to read "L. E. Crane", is written over a horizontal line.

L. E. Crane, Ph.D., Esq.

Patent Examiner

Technology Center 1600